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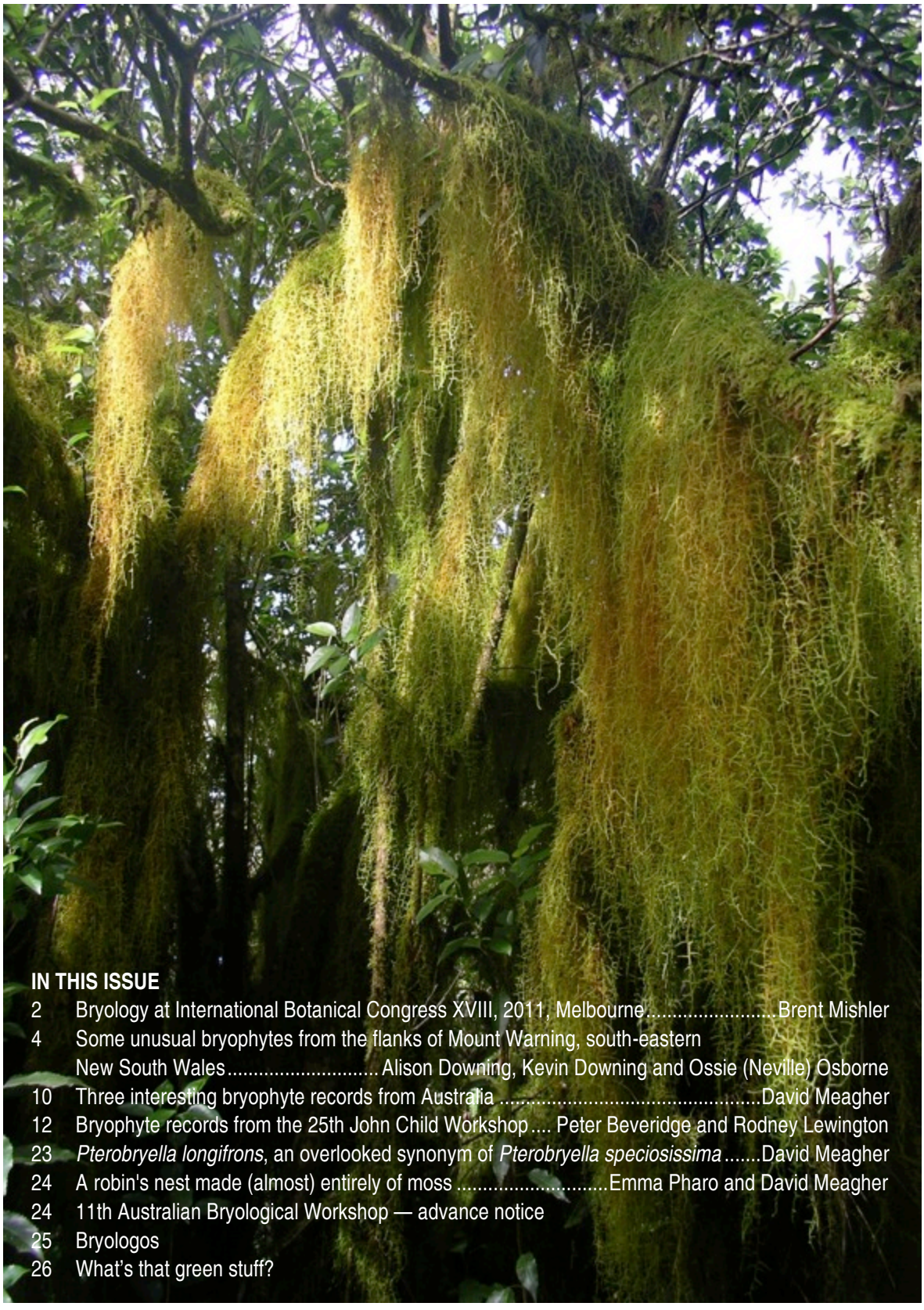

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Bryology at International Botanical Congress XVIII, 2011, Melbourne

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Bryology made quite a splash at IBC 2011, where the International Association of Bryologists (IAB) met concurrently, with five symposia devoted entirely to these most interesting of all plants, and a number of additional talks presented in other symposia. Approximately 90 bryologists attended from every part of the world. I heard many comments from non-bryologists impressed with how organised, enthusiastic, and scientifically advanced the bryology part of the Congress was. The five official IAB symposia were: 158 'Ecology, environment, and conservation of bryophytes,' organised by Lars Söderström; 155 'Liverwort phylogeny and evolution: a window into early land plant diversification,' organised by Jon Shaw; 087 'Hornworts: evolution, biology, and biodiversity,' organized by Chris Cargill and Jeff Duckett; 122 'The bryophyte tree of life (BryoToL): towards a bryophyte phylogeny group (BPG),' organised by Dietmar Quandt; and 098 'Fine-scale phylogenetics and biogeography in mosses,' organised by Brent Mishler.

There were talks in other symposia on such topics as *Marchantia* genomics and development, fungal symbioses, paleoecology, arctic moss ecology, and proteomics in *Physcomitrella*, as well as many interesting posters (both hard copy and electronic). Titles and abstracts of the talks and posters can be seen at www.ibc2011.com (the symposium numbers given above makes them easier to find).

No official bryophyte field trips were held, but several informal trips were taken, led by local bryologists, to get out and see the rich bryophyte flora of south Victoria. A special sight to see for many of us foreigners was the giant *Dawsonia superba* — '*this* is a moss', as Crocodile Dundee would say!

The social program was equally outstanding, thanks to an energetic local organising committee consisting of Paddy Dalton, Chris Cargill, Pina Milne, Niels Klazenga, Helen Jolley, and Allan Fife. Early in the meeting there was a fine Meet & Greet mixer at the National Herbarium at the Royal Botanic Gardens, Melbourne, highlighted by an excellent selection of cheeses and wines accompanied by an automated Powerpoint presentation of photographs from past IAB meetings, some from long ago that showed certain members of the audience in *much* younger days! Near the end of the meeting was an elegant IAB banquet at University House, University of Melbourne, with fine wine and food followed by mercifully short yet interesting and funny speeches by IAB President Jeff Duckett and local organising committee chair Paddy Dalton. Groups of bryologists could be found at restaurants around town each evening (and in pubs also, rumour has it…).

Good fun was had by all; old friends were reconnected, new friends were made, and foundations laid for many stimulating future collaborations. Thanks much to our Australian hosts, and to all the bryologists who travelled far to attend.

Next page (from top, left to right): Lars Söderström talks about biomes and ecoregions. Pat Brownsey, Kirsten Fisher, Allan Fife and Brent Mishler at the IBC dinner (with Paddy behind the camera). The IAB dinner at University House. Wynne Miles gets familiar with *Dawsonia longiseta* in Sherbrooke Forest. Endymion Cooper explains the ins (and outs) of *Telaranea* to a full house. The concourse at the Melbourne Convention and Exhibition Centre.

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Biomes from Terrestrial ecoregions of the world

Some unusual bryophytes from the flanks of Mount Warning, north-eastern New South Wales

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Introduction

Mount Warning, in the north-eastern corner of New South Wales, is the centre of a massive shield volcano that was active for about 3 million years from about 23 million years ago. Basaltic lava flows covered an area almost 100 km in diameter. Now Mount Warning is all that remains of the central plug of the volcano, surrounded by a massive caldera which includes one of the most spectacular mountainous national parks in Australia, which include Nightcap and Border Ranges in New South Wales and Lamington and Springbrook in Queensland. All are included in 'The World Heritage Central Eastern Rainforest Reserves of Australia´ (CERRA) and together with other areas including flora reserves, state forests and private properties, represent the major remaining areas of subtropical and warm-temperate rainforest in south-east Queensland and north-east New South Wales (Department of the Environment and Heritage, 2000). The area is extraordinary for the number of species of plants and animals which are either endemic to the area or rare. This appears to be the case for bryophytes as well as flowering plants.

The basalt and rhyolite lava flows from the volcano eventually produced a landscape that sloped gradually in all directions, divided by steep ridges so that in many cases, to travel from one town to another requires a long journey out through one valley, around the end of a ridge and back along a the next which runs almost parallel to the first. The fertile soils and high rainfall have provided an ideal environment for rainforests and, in more recent years, agriculture. However, the chemistry of the lava flows varies considerably, from silicic (rhyolite) lavas to basaltic lavas, creating even greater diversity amongst the vegetation communities; rhyolite lavas support warm temperate rainforests and basalt soils support sub-tropical rainforests. The area has a high rainfall[1] and Nightcap National Park has the highest annual rainfall in New South Wales with a mean of 2314 mm (Rummery Park, Whian Whian). The highest annual rainfall, 3982 mm was recorded in 1988, and the highest daily rainfall, 431 mm, on 21 February 1954 (Bureau of Meteorology 2010).

Bryophytes

The Reverend W.W. Watts served as minister to the Presbyterian Church in Ballina from 1896 to 1903. He made good use of his time and collected extensively (mosses, liverworts and ferns) in the Richmond River area of north-eastern corner of New South Wales (Ramsay, 1980, Watts, 1901). His collections from this region include many species that are either rare or known only from this region. One wonders how the good reverend managed to find time for his parishioners!

In August 2010, we visited retired Macquarie University staff member Ossie Osborne on his property at Nimbin on the south-western slopes of Mount Warning. The property faces north, looking across the valley to the steep and densely forested ranges of Nightcap National Park. This

[1] www.tropicalnsw.com.au/nationalparks/nightcap.html

was originally part of the 'Big Scrub'. Red Cedar (*Toona ciliata*) was cut from the forested area in the immediate vicinity of Nimbin and much of the remaining land cleared for grazing and for dairies. Much of the rich volcanic soil has slumped off steep hills leaving clay soils that range in texture from a sticky plasticine consistency in the wet season to rock hard in the dry. In the last 15 years, Ossie has established extensive landscaped gardens on the crest of the ridge running through his property, while the steepest sections have been planted with local eucalypts and rainforest trees. We collected both on his property and also along the road leading past. While we had the necessary permits, time did not permit any collecting in the national parks. Vouchers of all the species mentioned here will be deposited with NSW and MQU. Some species were predictable, such as the short turf of *Dawsonia polytrichoides*, growing (encouraged by Ossie) in the shelter of the verandah, on the southern side of the house, while others were quite rare.

***Nanobryum thorsbornei* I.G.Stone,** a new record for New South Wales

The title of Ilma Stone's paper, '*Nanobryum thorsbornei*, a remarkable new moss from Australia', is quite appropriate for this oddity. We found *N. thorsbornei* growing in pure stands on damp, shaded clay banks along the roadside. The plants were minute, ca 1.5 mm high and would have been invisible to us if it were not for the sporophytes emerging from a dense mat of green protonema. In the laboratory, it was possible to discern tiny plants with brown, three-lobed scale-like leaves and sporophytes similar to those of *Fissidens.* There has been considerable argument over theplacement of the genus *Nanobryum.* For example, Pursell and Reese (1980) and Bruggeman-Nannenga and Berendsen (1988) suggested it was more appropriately placed under *Fissidens.* However, Ilma Stone (1990) defended its inclusion in *Nanobryum*. *N. thorsbornei* has previously only been recorded from Queensland, with most collections between Ingham and Cooktown. However, there is one collection (Stone 20670[A]) from Lamington Plateau in the south-eastern corner of that state (AusMoss), so its presence in the north-eastern corner of New South Wales, with comparable geology, topography, vegetation and climate, seems quite feasible.

***Entosthodon smithhurstii* (Broth. & Gehr.) Paris**

Around 1900, Watts collected *Entosthodon smithhurstii* at various locations near Ballina and along the Richmond River. More recently, Ilma Stone collected this species at a number of localities in SE Queensland. There are also collections from Dungog and Muswellbrook, both reasonably close to Barrington Tops and two odd outliers, Echuca in Victoria and Boorowa on the south-western slopes of NSW (Ausmoss). Fife and Seppelt (2001) described *E. smithhurstii* as a 'highly distinctive species known only from turn-of-the-century and a few recent collections from south-eastern Queensland and north-eastern New South Wales' and having a 'distinctly pyriform capsule identical with that of *Physcomitrium pyriforme* and 'no peristome development'. We found *E. smithhurstii* with an abundance of sporophytes, on damp, sticky clay soil along the side of the road.

***Macromitrium caloblastoides* Müll.Hal.**

Most of our Nimbin bryophyte collections were from soil, but we did collect a few epiphytes, one of which Helen Ramsay identified for us as *Macromitrium caloblastoides*. Vitt and Ramsay (1985) reported *M. caloblastoides* as a 'rare species that we have not seen in abundance at any locality'. They comment that it was not seen 'in abundance in ravine rainforest habitats', preferring instead drier forests dominated by *Eucalyptus, Casuarina* and *Leptospermum* (Vitt and Ramsay 1985). This preference for drier habitats probably explains its presence in the more open situation on the crest of the ridge. *M. caloblastoides* is reported as endemic to eastern Australia, from the Sydney area to Cairns, but with most collections clustered between Lismore and Brisbane. The characters we found most useful in identification of this species in Vitt and Ramsay (1985) were: 'the combination of leaves tightly and regularly inrolled, with most leaves having the apices hidden in the cavity produced by the inrolling', 'capsule puckered at the mouth and 8-plicate', 'peristome reduced to a low membrane' and 'calyptrae short-conic, naked, and mitrate'.

Phascum* aff. *cuspidatum* Schreb. ex Hedw. var. *cuspidatum

The north-east of NSW appears to be an unusual location in which to find this moss. Both Streimann and Klazenga (2002) and Ausmoss report *P.* aff. *cuspidatum* as occurring only in Victoria although it is widespread throughout the world. Current studies of Pottiaceae by Helen Jolley may shed more light on this particular species and its distribution. Like most of the species Helen is studying, it is frustratingly small. In its habitat, among large and conspicuous bryophytes, it would be easily overlooked.

***Ptychomitrium muelleri* (Mitt.) A.Jaeg.**

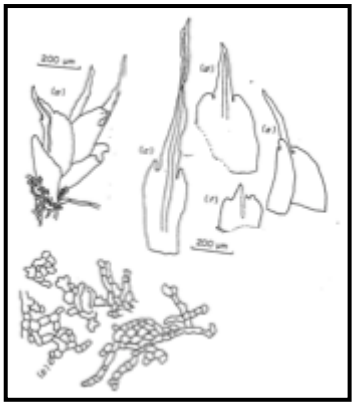
According to *Ausmoss, P. muelleri* appears to have been most frequently recorded from north-eastern NSW, south-eastern Queensland and Lord Howe Island. It was originally thought to be an Australian endemic (Scott and Stone, 1976), however Cao et al. (2001) by synonymy have extended its range to New Caledonia, South Africa and South America. The plants form a dense, short turf, black below, dark green above, usually with an abundance of sporophytes with mitrate calyptrae. Scott and Stone (1976) described it as being similar to, but larger than, *P. australe* and with a longer calyptra. We found the most useful feature for identification was the leaf which is bistratose from costa to margin, rather than bistratose only at the margins. It appears to prefer basalt rock. At first glance, you would think it belonged in the Pottiaceae, however the combination of mitrate calyptra and smooth cells soon puts paid to that idea.

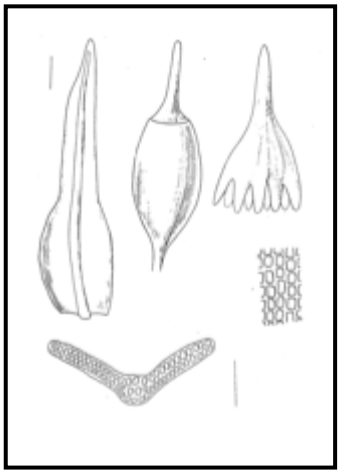
***Rosulabryum epiphyticum* J.R.Spence & H.P.Ramsay**

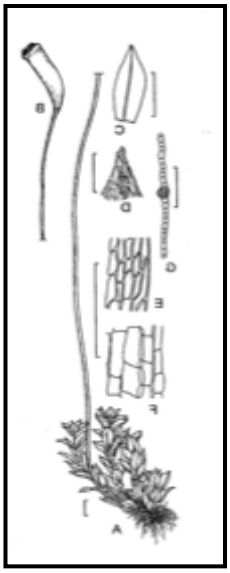
At the Australasian Bryological Workshop held at Paluma, Queensland, in 2005, John Spence commented that it was very rare to find any *Bryum* (and closely related genera) growing as epiphytes. One exception is the rare endemic *R. epiphyticum* from the coast and ranges of Queensland and north-eastern NSW, described by John from material collected growing on an epiphytic orchid which had its origins in the rainforests to the west of Port Macquarie (Spence and Ramsay, 2006). We were delighted to find this species growing in the same habitat, that is, on epiphytic orchids, at Nimbin. It has also been recorded from the branches of trees and shrubs and from rocks. There appear to be very few other collections, all made by Ilma Stone in Queensland (Ausmoss). One of Stone´s collections was from just across the border into Queensland in Lamington National Park (MEL 2219159A). Spence comments that *R. epiphyticum* is a 'distinctive species in a habitat that is unique for the genus. The stems with equidistant leaves, percurrent or very short-excurrent costae, and filiform gemmae in the leaf axils are diagnostic´ (Spence and Ramsay, 2006).

***Trematodon longescens* Müll.Hal.**

Trematodon longescens has been recorded from the east coast of New South Wales and Queensland but again most collections have been recorded from the north-eastern corner of NSW. Other collections are from Cairns in north Queensland and Kempsey, Kurrajong and Jamberoo on the east coast of NSW (Encyclopedia of Life). The presence of *T. longescens* at these locations probably indicates a preference for soils of volcanic origin. At Nimbin we found *T. longescens* on damp, clayey ground along the roadside. The genus *Trematodon* is currently being revised by Rod Seppelt and Helen Ramsay for the Flora of Australia. We have been privileged to be curious and interested onlookers as the identity of various species of *Trematodon* is debated. The key characters in species identification appear to be characteristics of the capsule, in particular the ratio of the length of the capsule to the length of the elongated neck, the size of the spores, and for some taxa, leaf anatomy, particularly the subula structure and leaf margin. Without capsules, the plants look deceptively like *Ditrichum* and identification is almost impossible. It seems that we will have to wait for Rod and Helen to determine whether our specimen truly is *T. longescens* or whether it belongs with the almost-cosmopolitan *T. longicollis.*







Left: *Nanobryum thornsbornei*. a – plant; b – protonema; c, d, e, f – leaves. Modified from Stone (1982).

Centre: *Ptychomitrium muelleri*. Lines: upper left = 0.5 mm, lower right = 40 µm. Modified from Cao et al. (2001).

Right: *Rosulabryum epiphyticum*. Modified from N. Oram, Flora of Australia Vol. 51, p. 341.

Other species collected

Mosses

Barbula calycina
Bryum argenteum
Bryum lanatum
Campylopus introflexus
Campylopus torquatus
Ceratodon purpureus subsp. *convolutus*
Dawsonia polytrichoides
Dicranella dietrichiae
Entosthodon subnudus var. *subnudus*
Fabronia scottiae
Fissidens curvatus var. *curvatus*
Fissidens linearis var. *linearis*
Funaria hygrometrica
Gemmabryum pachythecum
Isopterygium albescens
Papillaria leuconeura
Racopilum cuspidigerum var. *cuspidigerum*
Rosulabryum billardieri
Sauloma tenella
Sematophyllum subhumile var. *contiguum*
Sematophyllum subhumile var. *subhumile*
Tortula pagorum

Liverworts

Cephaloziella varians
Frullania monocera
Frullania squarrosula
Lejeunea drummondii
Megaceros sp.

Conclusions

Our ‘snatch and grab´ raid at Nimbin yielded some interesting and unusual species and drove home to us the value and importance of looking in other than the most exciting and appealing locations. The pristine environments of National Parks are not the only repositories of rare and uncommon species. We are well aware that the bryophytes we collected may not necessarily be rare or unusual, just that they have been overlooked because they grew in a less than exotic location. This area of north-eastern New South Wales is incredibly beautiful, with spectacular topography and geology, high rainfall, rich forests, and a great diversity of habitats including farmed and forested lands. Perhaps it could be considered as a base for a future bryological workshop!

Acknowledgement

We would like to thank Rod Seppelt for his advice and help with editing the text.

Looking from Nimbin to the Nightcap Ranges in north-eastern New South Wales.

Dawsonia polytrichoides growing (cultivated) under the south-facing verandah of the house.

Mount Warning near Murwillumbah in north-eastern New South Wales, remnant of the volcanic plug of a shield volcano from which lava flowed hundreds of kilometres into New South Wales and Queensland.

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Three interesting bryophyte records from Australia

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School of Botany, The University of Melbourne

***Schistochila ciliata* Steph. reinstated for Australia**

All previous records of *Schistochila ciliata* were either *S. tasmanica* or *S. pseudociliata* (Schuster and Engel 1985). But among the collections in MEL that Schuster and Engel did not have the chance to examine is a good specimen of this species, although consisting of only a small number of stems. It was collected from the Warburton area, but the collector and date are not known. Since it is annotated in the hand of James Audas, it must have been collected before the 1950s. It had been identified as *'Schistochila pseudociliata*' and was the basis for the record of that species from mainland Australia. However, the cilia on the leaves of this specimen arise from a protruding base of 2–6 cells (rarely 1 cell), and there are no unlobed underleaves on the stems. *Schistochila ciliata* is therefore known from New Zealand and Victoria, and *Schistochila pseudociliata* is known only from New Zealand and Tasmania.

Specimen seen: VICTORIA: Warburton, on bark with *Aneura alterniloba* and other bryophytes; collector unknown (pre 1950s), MEL-301206.

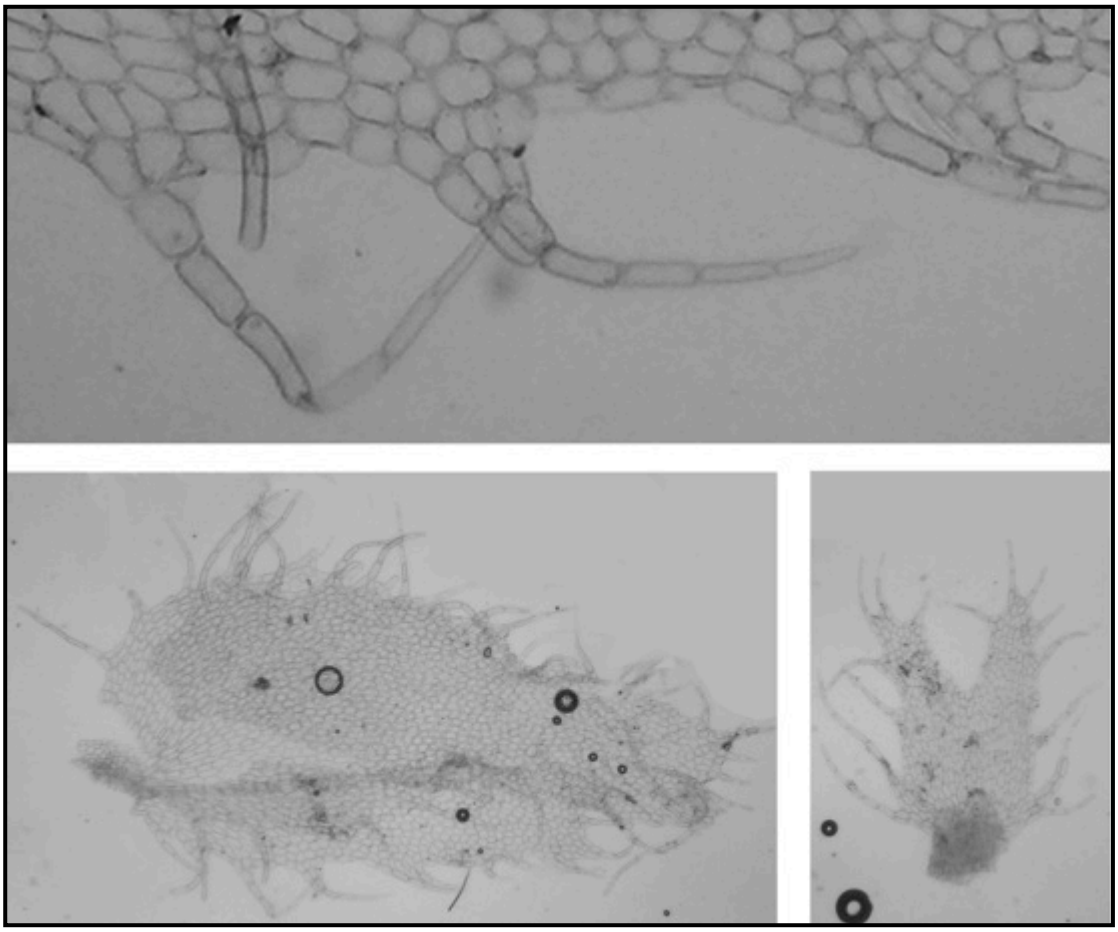

Figure 1. Leaf, underleaf and detail of leaf cilia of *Schistochila ciliata* (from MEL-301206).

***Fissidens adianthoides* Hedw. new to mainland Australia**

This species has previously been thought to be restricted to New Zealand and Tasmania (Beever et al. 1990, Streimann and Klazenga 2002). However, there is a good specimen from Victoria in the National Herbarium of Victoria (MEL), collected by Cliff Beauglehole in the far south-west of the state in the 1960s and identified by Jim Willis in 1966, although the record was apparently never published. The two specimens cited here are apparently from the same collection. *Fissidens adianthoides* is the largest of the Australian *Fissidens* and is easily recognised by the large size and raggedly toothed leaf margins.

Specimens seen: VICTORIA: Cobboboonee State Forest, Surry [‘Surrey´] River, 31 Mar 1962, A.C. Beauglehole 8171, MEL-1059762; Gorae, Surry River, 31 Mar 1962, A.C. Beauglehole 8171, MEL-1015775.

***Calomnion complanatum* new to Norfolk Island**

The genus *Calomnion* includes several species that are island endemics or confined to a very small area — *C. ceramense* (Ceram), *C. iwatsukii* (New Caledonia), *C. denticulatum* (Samoa), *C. schistostegiellum* (French Polynesia), *C. milleri* (Lord Howe Island), *C. brownseyi* (South Island, New Zealand), *C. melanesicum* (Vanuatu, Fiji) and *C. lilianae* (Norfolk Island) (Vitt 1991, 1995). Only *C. complanatum* is widespread, ranging from south-eastern Australia to New Zealand and Raoul Island in the Kermadecs, where (in addition to the ‘typical´ *C. complanatum*) an unusual form with elongate dorsal leaves occurs, of which more will be said elsewhere. Until now *C. lilianae* has been the only species recorded from Norfolk Island. But a specimen collected there by Peter Beveridge turns out to be *C. complanatum*, distinguished most notably from *C. lilianae* by the costa failing below the leaf apex (excurrent in *C. lilianae*). This form, with unusually long dorsal leaves that often approach the lateral leaves in size and shape, is the same as the one found on Raoul. Norfolk Island, as far as is known, is the only small island to support two species of the genus.

Specimen seen: NORFOLK ISLAND: Norfolk Island National Park, immediately east of Hollow Pine Ridge. P. Beveridge s.n., CANB-671792. (Duplicate in WELT, not seen.)

Acknowledgements

Thanks to Pina Milne and Alison Vaughan (Royal Botanic Gardens, Melbourne) for organising access to the MEL collection and data (Royal Botanic Gardens Board, Melbourne, MELISR database, 5 March 2009). Thanks also to Chris Cargill (Australian National Botanic Bardens, Canberra) for organising access to CANB material.

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Bryophyte records from the 25th John Child Workshop

Peter Beveridge[1] and Rodney Lewington[2]

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[2] *4 Highbury Cres., Highbury Wellington 6012 New Zealand, email rodneyjlXXclear.net.nz**

The John Child Bryophyte and Lichen Workshop, based at Riverton in Southland, New Zealand, in the period 4–9 December 2010, was attended by 39 amateur and professional bryophyte and lichen enthusiasts.

The field program was all within the Southland Land District. The workshop consisted of field trips to various locations in the area during the morning and early afternoon with lab work and presentations for the remainder of the day. The locations of the sites visited are show in Table 1.
Substantial work on identifying species collected has continued since the workshop. There remain a few unidentified collections which are awaiting further attention from relevant experts in New Zealand and overseas.
The mosses, hornworts and liverworts reported by attendees are listed in the tables below.† The full listing of the collections made and information on where specimens are held or have been deposited can be provided. Enquiries about these should initially be addressed to Rodney Lewington.

Participants in the workshop (in alphabetical order — can you match each name to a face?

Enid Asquith[1], Paul Asquith[1], Peter Beveridge[2], Patrick Brownsey[2], Chris Cargill[3], Lynette Cave[4], Paddy Dalton[4], Allison Downing[5], Allan Fife[6], Lynette Fischer[7], Betina Fleming[8], Anne Gaskett[1], David Glenny[6], Ulva Goodwillie[9], SusanHansard[10], GregHowell[1], Allison Knight[8], Indrapriya Kularatne[1], Sue Lake[11], Rodney Lewington[2], Lars Ludwig[8], Jane Marshall[12], Bill Malcolm[13], Nancy Malcolm[13], Maia Mistral[8], Ben Myles[8], Barbara Parris[14], Leon Perrie[2], raham Pritchard[7], Aimee Pritchard[8], Anne Redpath[15], Josh Salter[1], Alice Shanks[6], Lara Shepherd[7], Jim Shevock[16], John Steel[8], Birgita Strömbäck[17], Paula Warren[2], Mats Wedin[17].

1 Auckland, 2 Wellington, 3 Canberra, 4 Hobart, 5 Sydney, 6 Christchurch, 7 Palmerston North, 8 Dunedin, 9 Stewart Island, 10 Foxton, 11 Te Anau, 12 Hokitika, 13 Nelson, 14 Kerikeri, 15 Opotiki, 16 San Francisco, 17 Stockholm

* 'XX' in the email addresses is an anti-spam device. Replace it with @ when emailing.
† A list of the lichens collected from the Riverton area during the foray will be reported later.

Table 1 Locations visited on the John Child Bryophyte and Lichen Workshop, Riverton (Southland, New Zealand), 4–9 December 2011. Unless stated the geographic references are to the starting point of the collection where vehicles were parked.

Mores Scenic Reserve, car park, 2 km W of Riverton. 5 December.
Coastal forest on ridge and slopes. Forest dominated by kamahi (*Weinmannia racemosa*) with *Griselinia littoralis, Pseudopanax arboreus, Melicytus ramiflorus, Fuchsia excorticata* and occasional podocarps, and patches of tree-ferns, *Cyathea smithii, Dicksonia squarrosa and D. fibrosa.*
NZ Topo 50 Map CG09, grid ref. E12 152 51, N 48 527 76. Alt. 100 m rising to 171 m
Lat. 46°22′08.54″S, Long. 167°59′50.98″E

Taramea Coastal Walkway: (A) car park at end of Rock Rd; (B) western end of the beach track, 4 km south of Riverton at Howells Point. 5 December.
An area of coast with rock outcrops among *Phormium* sp., *Lupinus arboreus* and grasses.
NZ Topo 50 Map CG09, grid. ref. (A) E12 180 49, N 48 513 30, (B) E12 170 57, N48 513 85. Alt. 0 m rising to 20 m
(A) Lat. 46°23′00.91″S, Long. 168°01′57.20″E, (B) Lat. 46°22′57.12″S, Long. 168°01′11.10″

Dean Forest Reserve, Waiau Valley (Big Totara Track), at the end of the Lillburn–Monowai Road, 60 km NW of Riverton. 6 December.
Pristine *Nothofagus solandri* forest and mixed podocarp forest of *Podocarpus totara* and *Dacrycarpus dacrydioides.*, with *Aristotelia serrata, Carpodetus serratus, Pittosporum eugenioides, Coprosma rotundifolia, Lophomyrtus obcordat*a and *Dicksonia fibrosa.*
NZ Topo 50 Map CE08; E11 837 06, N49 067 82. Alt. 140 m
Lat. 45°51′59.33″S, Long. 167°38′11.11″E

Motu Bush, Wairau Valley, Lillburn – Monowai Road, 50 km north-west of Riverton. 6 December.
Roadside strip of *Nothofagus solandri* forest.
NZ Topo 50 Map CE 08, grid. ref. E11 842 00, N 49 051 10. Alt. 70 m to 100 m
Lat. 45°52′15″S, Long. 167°38′16″E

Lake Hauroko, end of Lillburn Valley Rd, 60 km WNW of Riverton. 6 December.
Lake shore, roadside lowland beech forest and road margin ditches with *Nothofagus solandri*, *N. menziesii* and *Sophora microphylla.*
NZ Topo 50 Map CF07, grid. ref. E11 649 98, N 48 916 98. Alt. 150 m
Lat. 45°59′24.16″S, Long. 167°22′58.30″E

Roadside stop in Lillburn Valley. 5 December.
NZ Topo 50 Map CF07, grid. ref. E11 700 96, N 48 902 49. Alt. 160 m
Lat. 46°00′22.45″S, Long. 167°26′49.46″E

Clifden Golf Course and bush below limestone cliff. 5 December.
Two habitats approached from the clubhouse of the Clifden Golf course, north of Riverton:
1. Open grassland and fairways with some patches of exotic scrub and forest.
2. Regenerating native bush in a strip below limestone cliffs.
Lat. 46°02′24.41″S, Long. 167°42′17.05″E

Round Hill, south end of the Longwood Range, 15 km W of Riverton: (A) Long Hilly Track car park; (B) Long Hilly Track water race. 7 December.
Regenerated coastal forest over old gold mining workings, including streams and water races. Dominated by Kamahi (*Weinmannia racemosa*) with *Podocarpus totara, Pseudopanax arboreus, Pseudowintera colorata, Metrosideros umbellata, Dicksonia squarrosa* and *Cyathea smithii*.
NZ Topo 50 Map CG08, grid. ref. (A) E 12 022 92, N 48 560 36, (B) E12 030 49, N 48 564 35. Alt. 40 m rising to 100 m
(A) Lat. 46°19′56.41″S, Long. 167°49′56.82″E, (B) Lat. 46°19′45.13″S, Long. 167°50′33.30″E

Pourakino River Valley, riverside track off Ermedale Road, 15 km NW of Riverton.
River bank *Nothofagus menziesii* forest. 7 December.
NZ Topo 50 Map CF09, grid. ref. E12 113 13, N48 669 06. Alt. 40 m
Lat. 46°14′24.42″S, Long. 167°57′29.40″E

Bald Hill, 25 km NW of Riverton: (A) summit, vicinity of TV mast; (B) summit, wet plateau east of summit; (C) access road cutting at bush line; (D) road embankment and ditch at access gate; (E) quarry and environs. 8 December.
Collections were made from the summit (804 m) down to the site of a quarry at 440 m.
The summit with *Dracophyllum longifolium – Coprosma – Astelia* – snow tussock shrubland with *Empodisma minus*, *Lepidothamnus* and *Gleichenia alpina*, draining to boggy slopes and terraces to the east.
Upper forest slopes of pristine montane *Nothofagus menziesii* forest to the treeline.
(A) NZ Topo 50 Map CF08, grid. ref. E12 011 53, N48 742 41, 804 m at mast
(B) NZ Topo 50 Map CF08, grid. ref. E 12 011 53, N48 743 54. Alt. 805 m at mast to 740 m to NW
(C) NZ Topo 50 Map CF08, grid. ref. E 12 006 15, N 48 730 35. Alt. 700 m
(D) NZ Topo 50 Map CF08, grid. ref. ± E 12 007 50, N 48 721 00. Alt. ±580 m
(E) NZ Topo 50 Map CF08, grid. ref. E12 016 14, N 48 712 00. Alt. 440 m
(A) Lat. 46°10′06.573″S, Long. 167°49′59.159 E (B) Lat. 46°10′02.927″S, 167°49′59.502″E
(C) Lat. 46°10′44.355″S, Long. 167°49′30.513″E (D) Lat. ±46°11′14.810″S, Long. 167°49′33.946″E
(E) Lat. 46°11′45.672″S, Long. 167°50′11.361″E

Table 2 Liverworts and Hornwortsrecorded during the John Child Bryophyte and Lichen Workshop, Riverton, Southland, 4–9 December 2010. Species identified at each location. Locations are as follows: 1 – Mores Scenic Reserve. 2 – Taramea Coastal Walkway. 3 – Dean Forest Reserve. 4 – Lake Hauroka. 5 – Lillburn Valley roadside stop. 6 – Clifden Limestone Cliff and Golf Course. 7 – Round Hill. 8 – Pourakino River Valley. 9 – Bald Hill summit and wet plateau. 10 – Bald Hill road embankment. 11 – Bald Hill access road.

	Location										
Species	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Hornworts											
Megaceros sp.Probably M. pellucidus (Colenso)E.A. Hodgs.						●	●		●	●	
Phaeoceros carolinianus (Michx.) Prosk.					●						
Liverworts											
Acrobolbus cinerascens (Lehm. et Lindenb.) Bastow											●
Acrobolbus aff. cinerascens (Lehm. & Lindenb.) Bastow											●
Acrobolbus concinnus (Mitt.) Grolle			●								
Adelanthus occlusus (Hook.f. et Taylor) Carrington									●		
Anastrophyllum schismoides (Mont.) Steph. var schismoides											●
Aneura alterniloba (Hook.f. & Taylor) Gottsche, Lindenb. & Nees	●			●							
Aneura sp . prob A. lobata subsp. australis	●	●					●				
Aneura sp. prob A. aff. novoguineensis	●										
Asterella tenera (Mitt.) R.M.Schust						●					
Austrofossombronia australis (Mitt.) R.M.Schust.				●							
Balantiopsis convexiuscula Berggr.							●				
Balantiopsis diplophylla (Hook.f. & Taylor) Mitt.		●									
Balantiopsis lingulata R.M.Schust.									●		
Balantiopsis montana (Colenso) J.J.Engel and G.L.S. Merrill							●				
Bazzania adnexa (Lehm. & Lindenb.) Trevis. var. adnexa			●	●			●	●			●
Bazzania involuta (Mont.) Trevis. var. involuta									●		
Bazzania nitida (Web.) Grolle			●			●					
Cephaloziella sp.aff hispidissima R.M.Schust								●			
Chandonanthus squarrosus (Hook.) Schiffn									●	●	●
Cheilolejeunea mimosa (Hook.f. et Taylor) R.M.Schust.*											
Chiloscyphus erosus J.J.Engel				●							
Chiloscyphus lentus (Hook.f. et Taylor) J.J.Engel et R.M.Schust.	●	●	●	●							
									●		
Chiloscyphus mittenianus (Colenso) J.J.Engel var. mittenianus				●							
			●						●		●
Chiloscyphus muricatus (Lehm.) J.J.Engel & R.M.Schust.	●				●						
Chiloscyphus novae-zeelandiae var. meridionalis (Steph.) J.J.Engel										●	
Chiloscyphus perpusillus (Hook.f. & Taylor) J.J.Engel						●					
Chiloscyphus semiteres (Lehm.) Lehm. & Lindenb. var. semiteres	●	●				●					
Chiloscyphus spinifer (Hook.f. & Taylor) J.J.Engel & R.M.Schust									●		
Chiloscyphus subporosus var subporosus (Mitt.) J.J.Engel & R.M.Schust	●		●							●	
Chiloscyphus tuberculatus J.J.Engel									●		
Chiloscyphus villosus (Steph.) J.J.Engel et R.M.Schust.			●	●							
Clandarium xiphophyllum (Grolle) R.M.Schust.									●		

* Collected at Howells Point.

Species	Location										
	1	2	3	4	5	6	7	8	9	10	11
Clasmatocolea sp. (?C. 'Kaniere')									●		
Clasmatocolea strongylophylla (Hook.f. et Taylor) Grolle									●		
Clasmatocolea vermicularis (Lehm.) Grolle						●					
Cuspidatula monodon (Hook.f et Taylor) Steph.*								●	●		
Dinckleria fruticella (Hook.f. & Taylor)				●							
Dinckleria pleurata (Hook.f. & Taylor) Trevis	●						●				
Diplasiolejeunea plicatiloba (Hook.f. & Taylor) Grolle									●		
Drepanolejeunea aucklandica Steph.				●							
Fossombronia reticulata Steph	●										
Frullania aterrima (Hook.f. & Taylor) Hook.f. & Taylor var. aterrima				●							
Frullania deplanata Mitt.	●							●			
Frullania falciloba Lehm.			●								●
Frullania incumbens Mitt.											●
Frullania monocera (Hook.f. & Taylor) Taylor in Gottsche, Lindenb. & Nees				●							
Frullania patula Mitt.	●	●				●		●			
Frullania pentapleura Tayl. (= F.solanderiana Colenso)	●										
Frullania pycnantha (Hook.f. et Taylor) Taylor var. pycnantha			●								
Frullania rostrata (Hook.f. & Taylor) Hook.f. & Taylor*	●			●				●			●
Frullania scandens Mont.				●				●			
Frullania setchellii Pearson			●					●			
Frullania squarrosula (Hook.f. & Taylor) Taylor			●					●			
Gackstroemiaweindorferi (Herzog) Grolle										●	●
Haplomitrium gibbsiae (Steph.) R.M.Schust.									●	●	
Harpalejeunea latitans (Hook.f. & Taylor) Grolle	●										
Hepatostolonophora paucistipula.											●
Herbertus oldfieldianus (Steph.) Rodway									●	●	
Heteroscyphus biciliatus (Hook.f. & Taylor) J.J.Engel	●			●			●				
Heteroscyphus billardierei (Schwaegr.) Schiffn.			●	●				●	●		●
Heteroscyphus circumdentatus (W. Martin & E.A. Hodgs.) J.J.Engel & R.M.Schust.									●		
Heteroscyphus coalitus (Hook.) Schiffn.	●		●				●			●	●
Heteroscyphus compactus (Colenso) R.M.Schust.						●					
Heteroscyphus cuneistipulus (Steph.) Schiffn.	●		●				●				
Heteroscyphus sp. (?H. fissistipus or H. sinuosus)	●								●		
Heteroscyphus normalis (Steph.) R.M.Schust.	●										●
Heteroscyphus mononuculus J.J.Engel									●		
Heteroscyphus multispinus (E.A. Hodgs.& Allison) J.J.Engel & R.M.Schust.							●				
Heteroscyphus aff. supinus (Hook.f. & Taylor) R.M.Schust.			●								
Heteroscyphus triacanthus (Hook.f. & Taylor) Schiffn.				●		●					
Hymenophyton flabellatum (Labill.) Trevis.							●				
Hymenophyton leptopodum (Hook.f. & Taylor) Steph.	●			●			●	●			
Isotachis intortifolia (Hook.f. et Taylor) Gottsche							●			●	●
Isotachis lyallii Mitt.							●		●	●	
Isotachis montana Colenso									●	●	
Jamesoniella colorata (Lehm.) Schiffn									●		

* Also collected at Motu Bush.

Species	Location										
	1	2	3	4	5	6	7	8	9	10	11
Kurzia compacta (Steph.) Grolle									●		
Kurzia helophila var. helophila R.M.Schust.									●		
Kurzia hippuroides var. hippuroides (Hook.f. & Taylor) Grolle					●				●		
Lamellocolea granditexta (Steph.) J.J.Engel		●		●				●		●	
Lejeunea helmsiana Steph			●								
Lejeunea primordialis (Hook.f. & Taylor) Taylor in Gottsche, Lindenb. & Nees							●				
Lembidium nutans (Hook.f. & Taylor) Mitt.							●				●
Lepicolea attenuata (Mitt.) Steph.											●
Lepidogynahodgsoniae (Grolle) R.M.Schust.			●		●			●			
Lepidolaena clavigera (Hook.f.) Trevis.			●								
Lepidolaena palpebrifolia (Hook.f.) Trevis.				●							●
Lepidolaena reticulata (Hook.f. & Taylor) Trevis.									●		●
Lepidolaena taylorii (Gottsche) Trevis.			●	●				●			●
Lepidozia concinna Colenso			●		●			●			
Lepidozia laevifolia (Hook.f. & Taylor) Gottsche, Lindenb. & Nees var. laevifolia									●		●
Lepidozia obtusiloba var. obtusiloba Steph.									●	●	
Lepidozia pendulina (Hook.) Lindenb.					●				●	●	●
Lepidozia procera Mitt.			●								●
Lepidozia ulothrix (Schwaegr.) Lindenb.									●		
Lunularia cruciata (L.) Dumort.	●										
Marchantia berteroana Lehm. & Lindenb.		●				●					
Marchantia foliacea Mitt.				●				●			
Marchantia pileata Mitt.				●							
Metzgeria crassipilis (Lindb.) Evans	●										
Metzgeria flavovirens Colenso	●		●								●
Metzgeria furcata (L.) Dumort	●	●	●			●	●		●		
Metzgeria leptoneura Spruce			●	●				●	●		●
Nephelolejeunia sp.	●										
Pallavicinia lyallii (Hook.) Gray						●					
Plagiochila baileyana Steph.			●	●				●			●
Plagiochila banksiana Gottsche var. banksiana				●							
Plagiochila circinalis (Lehm. et Lindenb.) Lehm. et Lindenb.											●
Plagiochila deltoidea Lindenb.			●	●				●			●
Plagiochila fasciculata Lindenb	●		●					●	●		●
Plagiochila gigantea (Hook.) Dumort.			●	●				●			●
Plagiochila incurvicolla (Hook.f. & Taylor) Hook.f. & Taylor			●								
Plagiochila lyalliiMitt. var. lyallii			●				●	●			
Plagiochila obscura Colenso	●		●								
Plagiochila radiculosa Mitt.											●
Plagiochila sp (some affinity to P. radiculosa)			●								
Plagiochila retrospectans (Nees ex Spreng.) Lindenb.				●	●						
Plagiochila rutlandii Steph.			●								
Plagiochila stephensoniana Mitt.	●		●			●		●			
Plagiochila strombifolia Taylor							●	●	●		
Plagiochilion conjugatus (Hook.) R.M.Schust											●
Podomitrium phyllanthus (Hook.) Mitt.	●				●						

Species	Location										
	1	2	3	4	5	6	7	8	9	10	11
Porella sp.		●	●			●					
Porella elegantula (Mont.) E.A. Hodgs (southern form)			●	●							
Porella pulcherrima S. Hatt	●		●								
Radula aneurismalis (Hook.f. & Tayl.) Gottsche, Lindeb.& Nees											●
Radula buccinifera (Hook.f. & Taylor) Gottsche, Lindenb. & Nees	●		●			●					
Radula physoloba Mont.				●				●			●
Radula silvosa E.A. Hodgs. & Allison	●					●					
Riccardia sp. (?R.alba (Colenso) E.A.Brown)					●						
Riccardia australis (Hook.f. & Leveille) E.A. Brown			●								
Riccardia sp. (?R. bipinnatifida)				●	●				●		
Riccardia cochleata (Hook.f. & Taylor) Kuntze	●								●		
Riccardia colensoi (Steph.) W. Martin									●		
Riccardia crassa (Schwaegr.) Carrington & Pearson									●		
Riccardia eriocaula (Hook.) Besch. & C. Massal.					●						
Saccogynidium australe (Mitt.) Grolle							●				
Schistochila appendiculata (Hook.) Trevis							●				
Schistochila balfouriana (Hook.f. et Taylor) Steph.								●			●
Schistochila chlorophylla (Colenso) J.J.Engel & R.M.Schust.				●	●						●
Schistochila glaucescens (Hook.) A.Evans											●
Schistochila nobilis (Hook.) Trevis					●			●			●
Schistochila repleta (Hook.f. & Taylor) Steph						●					
Siphonolejeunea nudipes (Hook.f. & Taylor) Herzog						●					
Solenostoma inundatum (H.f &T.) Mitt.											●
Solenostoma orbiculatum (Colenso) R.M. Schust.									●		
Solenostoma totopapillosum (E.A.Hodgs.) R.M.Schust.									●	●	
Symphyogyna hymenophyllum (Hook.) Mont. & Nees				●			●		●		
Symphyogyna sp. (?S. subsimplex)			●								
Symphyogyna subsimplex Mitt.							●				
Symphyogyna tenuinervis (Hook.f. & Taylor) Grolle	●						●	●			
Symphyogyna undulata Colenso						●	●				
Telaranea herzogii (E.A. Hodgs.) E.A. Hodgs.		●							●		
Telaranea martinii (E.A.Hodgs.) R.M.Schust.							●				
Telaranea patentissima (Hook.f. & Taylor) E.A. Hodgs. var. patentissima			●						●		
Telaranea tetrapila var. roseana (Steph.) J.J.Engel et Merrill							●				
Telaranea tuberifera J.J.Engel & R.M.Schust.							●				
Treubia lacunosa (Colenso) Prosk.							●			●	
Trichocolea hatcheri E.A. Hodgs				●				●			●
Trichocolea mollissima (Hook.f. & Taylor) Gottsche			●	●	●			●			●
Trichocolea rigida R.M.Schust.				●							
Tylimanthus diversifolius E.A. Hodgs				●							
Tylimanthus saccatus (Hook.) Mitt.				●	●						
Zoopsis argentea var. argentea (Hook.f. & Taylor) Hook.f.	●	●	●				●				
Zoopsis argentea var. flagelliformis (Colenso) R.M.Schust.		●	●				●				
Zoopsis leitgebiana (Carrington & Pearson) Bastow							●	●			

Table 3 Mosses recorded during the John Child Bryophyte and Lichen Workshop, Riverton, Southland, 4–9 December 2010. Species identified at each location. Locations are as follows:
1 – Mores Scenic Reserve. 2 – Taramea Coastal Walkway. 3 – Dean Forest Reserve. 4 – Motu Bush. 5 – Lake Hauroka. 6 – Clifden Limestone Cliff and Golf Course. 7 – Round Hill. 8 – Pourakino River Valley. 9 – Bald Hill summit and wet plateau. 10 – Bald Hill upper forest and road margins.

	Location									
Species	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Achrophyllum dentatum (Hook.f. et Wilson) Vitt et Crosby	●		●				●			
Achrophyllum quadrifarium (Sm.) Vitt et Crosby	●				●					
Acrocladium chlamydophyllum (Hook.f. et Wilson) Müll.Hal. et Broth.			●							
Andreaea acutifolia Hook.f. et Wilson subsp. acutifolia										●
Andreaea mutabilis Hook.f. et Wilson									●	
Andreaea subulata Harv.									●	
Atrichum androgynum (Müll.Hal.) A.Jaeger			●							
Austrohondaella limata (Hook.f. et Wilson) Z.Iwats., H.P.Ramsay et Fife							●			
Barbula calycina Schwägr.		●								
Bartramia papillata Hook.f. et Wilson									●	
Blindia robusta Hampe									●	
Brachythecium rutabulum (Hedw.) Bruch et Schimp.					●					
Breutelia elongata (Taylor) Catches.									●	
Breutelia pendula (Sm.) Mitt.					●					
Bryum billardierei Schwägr.	●	●	●							
Bryum blandum Hook.f. & Wilson										●
Bryum dichotomum Hedw.		●								
Bryum laevigatum Hook.f. et Wilson					●				●	
Bucklandiella sp. 1									●	
Bucklandiella sp. 2									●	
Calliergonella cuspidata (Hedw.) Loeske					●					
Calomnion complanatum (Hook.f. et Wilson) Lindb.	●						●			
Calyptopogon mnioides (Schwägr.) Broth.	●									
Calyptrochaeta apiculata (Hook.f. et Wilson) Vitt		●								
Calyptrochaeta brownii (Dixon) J.K.Bartlett										
Calyptrochaeta flexicollis (Mitt.) Vitt	●									
Camptochaete aciphylla Dixon et Sainsbury	●									
Camptochaete angustata (Mitt.) Reichardt			●							
Camptochaete arbuscula (Sm.) Reichardt var. arbuscula	●		●				●			
Camptochaete pulvinata (Hook.f. & Wilson) A.Jaeger					●			●		
Campylopus clavatus (R.Br.) Hook.f. et Wilson							●			
Campylopus introflexus (Hedw.) Brid.	●						●	●		
Campylopus pyriformis (Schultz) Brid.	●									
Canalohypopterygium tamariscinum (Hedw.) Kruijer	●		●				●			
Catagonium nitens (Brid.) Cardot								●		
Ceratodon purpureus (Hedw.) Brid.	●	●								
Cladomnion ericoides (Hook.) Hook.f. et Wilson										●
Codonoblepharon minutum (Müll.Hal. & Hampe) Matcham & O'Shea	●									
Codonoblepharum menziesii Schwägr.		●				●		●		
Cratoneuropsis relaxa (Hook.f. et Wilson) Broth.		●								
Cryphaea acuminata Hook.f. et Wilson	●									
Cryphaea parvula Mitt.	●		●							
Cyathophorum bulbosum (Hedw.) Müll.Hal.	●		●				●			

Species	Location									
	1	2	3	4	5	6	7	8	9	10
Cyrtopus setosus (Hedw.) Hook.f.							●			
Daltonia splachnoides (Sm.) Hook. et Taylor			●							
Dendrohypopterygium filiculaeforme (Hedw.) Kruijer			●							
Dendroligotrichum dendroides (Hedw.) Broth.									●	●
Dichelodontium nitidum (Hook.f. et Wilson) Broth.	●									
Dicnemon calycinum (Hook.) Schwägr.					●			●		
Dicnemon semicryptum Müll.Hal.										●
Dicranella cardotii (R.Br.bis) Dixon					●					
Dicranoloma billardierei (Brid.) Paris	●		●					●		
Dicranoloma dicarpum (Nees) Paris	●			●						
Dicranoloma menziesii (Hook.f. et Wilson) Paris	●		●				●			
Dicranoloma plurisetum Dixon			●							
Dicranoloma robustum (Hook.f. et Wilson) Paris				●				●	●	
Didymodon australasiae (Hook. et Grev.) R.H.Zander								●		
Didymodon torquatus (Taylor) Catches.		●								
Distichophyllum kraussei (Lorentz) Mitt.										●
Distichophyllum microcarpum (Hedw.) Mitt.			●				●			
Distichophyllum pulchellum (Hampe) Mitt. var. pulchellum					●					
Distichophyllum rotundifolium (Hook.f. et Wilson) Müll.Hal. et Broth.							●			
Ditrichum brevirostre (R.Br.bis.) Broth.									●	
Ditrichum difficile (Duby) M.M.Fleisch.							●			
Ditrichum punctulatum Mitt.									●	
Drepanocladus aduncus (Hedw.) Warnst.									●	
Echinodium hispidum (Hook.f. et Wilson) Reichardt	●		●				●			
Echinodium umbrosum (Mitt.) A.Jaeger	●									
Eriodon cylindritheca (Dixon) Dixon et Sainsbury							●			
Eurhynchium praelongum (Hedw.) Hook.				●						
Fallaciella gracilis (Hook.f. et Wilson) H.A.Crum	●						●			
Fissidens asplenioides Hedw.					●					
Fissidens curvatus Hornsch. var. curvatus	●						●			
Fissidens dealbatus Hook.f. et Wilson	●									
Fissidens rigidulus Hook.f. et Wilson var. rigidulus										●
Fissidens tenellus Hook.f. et Wilson var. tenellus							●			
Funaria hygrometrica Hedw.							●			
Glyphothecium sciuroides (Hook.) Hampe			●				●	●		
Goniobryum subbasilare (Hook.) Lindb.	●									
Grimmia pulvinata (Hedw.) Sm. et Sowerby var. africana Hook.f. et Wilson								●		
Grimmia trichophylla Grev.	●	●							●	
Hampeella alaris (Dixon et Sainsbury) Sainsbury	●									●
Hymenodon pilifer Hook.f. et Wilson										
Hypnodendron arcuatum (Hedw.) Mitt.	●						●			
Hypnodendron comatum (Müll.Hal.) Touw			●							
Hypnodendron comosum var. comosum			●							
Hypnodendron kerrii (Mitt.) Paris										●
Hypnodendron menziesii (Hook.) Paris							●			
Hypnodendron spininervium (Hook.) A.Jaeger var. spininervium			●				●			
Hypnum chrysogaster Müll.Hal.	●		●		●		●			
Hypnum cupressiforme Hedw. var. cupressiforme	●						●	●	●	
Hypopterygium didictyon Müll.Hal.			●							
Lembophyllum clandestinum(Hook.f. et Wilson) Lindb.		●	●							●

Species	Location									
	1	2	3	4	5	6	7	8	9	10
Lembophyllum divulsum (Hook.f. et Wilson) Lindb.		●								
Leptodon smithii (Hedw.) F.Weber et D.Mohr	●				●					
Leptostomum inclinans R.Br.			●							●
Leptostomum macrocarpum (Hedw.) Bach.Pyl.	●	●								
Leptotheca gaudichaudii Schwägr.	●		●	●	●		●		●	
Leucobryum javense (Brid.) Mitt.	●		●				●			
Lopidium concinnum (Hook.) Hook.f. et Wilson	●		●				●			
Macrocoma tenue (Hook. et Grev.) Vitt subsp. tenue	●		●		●					
Macromitrium gracile (Hook.) Schwägr.	●				●		●			
Macromitrium grossirete Müll.Hal.					●					
Macromitrium longipes (Hook.) Schwägr.	●			●	●					●
Macromitrium longirostre (Hook.) Schwägr.	●	●					●			
Macromitrium microstomum (Hook. & Grev.) Schwägr.	●				●					
Macromitrium orthophyllum Mitt.			●		●					
Macromitrium prorepens (Hook.) Schwägr.			●		●					●
Macromitrium retusum Hook.f. et Wilson	●				●		●			
Mesotus celatus Mitt.			●		●					●
Neckera hymenodonta Müll.Hal.	●						●	●		
Notoligotrichum crispulum (Hook.f.&Wilson) G.L.Smith									●	
Orthodontium lineare Schwägr.	●							●		
Orthorrhynchium elegans (Hook.f. et Wilson) Reichardt	●						●			
Orthotrichum calvum Hook.f. et Wilson	●									
Orthotrichum hortense Bosw.	●									
Pendulothecium punctatum (Hook.f. et Wilson) Enroth et S.He	●									
Philonotis tenuis (Taylor) Reichardt	●									
Physcomitrium pyriforme (Hedw.) Hampe							●			
Pogonatum subulatum (Brid.) Brid.							●			
Pohlia camptotrachela (Renauld & Cardot) Broth.									●	
Polytrichadelphus magellanicus (Hedw.) Mitt.										●
Polytrichastrum alpinum (Hedw.) G.L.Sm.										●
Polytrichum commune Hedw.									●	
Polytrichum juniperinum Hedw.								●	●	
Pseudoscleropodium purum (Hedw.) M.Fleisch.								●		
Pseudotaxiphyllum falcifolium (Hook.f. et Wilson) S.He			●							
Ptychomnion aciculare (Brid.) Mitt.	●		●				●		●	
Pyrrhobryum bifarium (Hook.) Manuel	●		●							
Racomitrium crispulum (Hook.f. et Wilson) Hook.f. et Wilson								●	●	
Racomitrium pruinosum (Hook.f. et Wilson) Müll.Hal.									●	
Racopilum cuspidigerum (Schwägr.) Ångstr. var. convolutaceum (Müll.Hal.) Zanten et Dijkstra			●							
Racopilum strumiferum (Müll.Hal.) Mitt.	●						●			
Rhacocarpus purpurascens (Brid.) Paris									●	
Rhizogonium distichum (Sw.) Brid.	●		●							
Rhizogonium novae-hollandiae (Brid.) Brid.	●						●			
Rhynchostegium laxatum (Mitt.) Paris	●									
Rhynchostegium muriculatum (Hook.f. et Wilson) Reichardt	●							●		
Rhynchostegium tenuifolium (Hedw.) Reichardt	●									
Sauloma tenella (Hook.f. et Wilson) Mitt.			●							
Schistidium apocarpum (Hedw.) Bruch et Schimp.						●		●		

Species	Location									
	1	2	3	4	5	6	7	8	9	10
Schlotheimia campbelliana Müll.Hal.*										
Schlotheimia knightii Müll.Hal.					●					
Scorpidium cossonii (Schimp.) Hedenäs									●	
Sematophyllum amoenum (Hedw.) Mitt.	●		●				●			
Sematophyllum subhumile var. contiguum (Mitt.) B.C.Tan, W.B.Schofield & H.P.Ramsay			●							
Sphagnum australe Mitt.										●
Sphagnum cristatum Hampe									●	
Syntrichia antarctica (Hampe) R.H.Zander		●						●		
Syntrichia papillosa (Wilson) Jur.		●								
Syntrichia serrata (Dixon) R.H.Zander								●		
Tayloria octoblepharum (Hook.) Mitt.							●	●		●
Tetraphidopsis pusilla (Hook.f. et Wilson) Dixon			●							
Thamnobryum pandum (Hook.f. & Wilson) I.G.Stone & G.A.M.Scott	●						●			●
Thuidium furfurosum (Hook.f. et Wilson) Reichardt			●		●		●	●		
Thuidium sparsum (Hook.f. et Wilson) Reichardt var. sparsum	●		●							●
Tortula muralis Hedw.						●		●		
Trachyloma planifolium (Hedw.) Brid.					●					
Ulota lutea (Hook.f. et Wilson) Mitt.				●	●			●		
Ulota viridis Venturi										●
Weissia controversa Hedw.	●									
Weymouthia cochlearifolia (Schwägr.) Dixon	●		●		●		●	●		
Weymouthia mollis (Hedw.) Broth.	●		●		●					
Zygodon hookeri Hampe				●						
Zygodon intermedius Bruch et Schimp.			●	●				●	●	●

* Collected at Mores Reserve, Balance Rock.

Comment on the collections

Hornworts and liverworts

Of those collections identified from the foray a few hornworts and liverworts have not been previously reported from Southland. Several of these are widespread in New Zealand suggesting that it is more a matter of not being reported rather than rarity. These widespread species include *Megaceros pellucidus* (Colenso) E.A. Hodgs., *Phaeoceros carolinianus* (Michx.) Prosk., *Frullania squarrosula* (Hook.f. & Taylor) Taylor, *Metzgeria flavovirens* Colenso, *Symphyogyna tenuinervis* (Hook.f. & Taylor) Grille, *Radula aneurismalis* (Hook.f. & Tayl.) Gottsche, Lindeb.& Nees, *Radula silvosa* E.A. Hodgs. & Allison, *Zoopsis argentea* var. *flagelliforme* (Colenso) R.M.Schust.

The following are of more interest being relatively uncommon and rarely, if at all, previously reported from Southland:

- *Heteroscyphus* aff. *supinus* (Hook.f. & Taylor) R.M.Schust.(RJL 1110, 6/12/11).

This specimen was collected from roots and humic soil adjacent to the board walk in the swamp at Dean Forest.It agrees with available descriptions and the limited illustrations of *H. supinus*. However this is considered to be a North Island species — hence the reservation.

- *Lejeunea helmsiana* Steph. (WELT H012334)
- *L.helmsiana* has previously been reported in the Chathams and north of the South Island.This specimen was collected in Dean Forest
- *Metzgeria crassipilis* (Lindb.) Evans, (GJP Morr1b and RJL 7001 5/12/10)

  This *Metzgeria* was collected from Mores Scenic Reserve. From the few reports it is widespread in the North Island, with one report from Otago by George Scott. This collection is clearly

M. crassipilis, with discoid gemmae on the dorsal surface, five epidermal cells on dorsal mid-vein and four dorsally. Wings are ± 24 cells wide.

- *Porella* sp. (GJPClif-3 and RJL 1000, 6/12/10)
  This as yet undescribed species is widespread throughout the eastern South Island, and a few records from the North Island. Often found on limestone or volcanic rock, but also as a trunk epiphyte. Characterised by its lack of yellow or brown pigments and leaves that are rather flat, the margins not recurved except at the apex. This was collected from the limestone area at the Clifden Golf Course and on the coast below Mores Scenic Reserve.
- *Trichocolea hatcheri* E.A. Hodg. (RJL 1345 6/12/10)
  T. hatcheri has been previously reported from Westland and Otago. It was found and has been identified independently by two of us (RJL and GJP) from Lake Hauroko, the Pourakino River Valley and the lower levels of Bald Hill. Some of these collections have some characterstics of *T. mollissima* but differ from that species sufficiently to warrant placing them in *T. hatcheri*.
- *Chiloscyphus leucophyllus* (Hook.f. & Taylor) Gottsche, Lindenb. & Nees (BHWS 12b-2 and WELT H012294).
  This species is common in Tasmania and previously reported from Stewart Island. The only previous South Island record is from West Jacket Arm in Fiordland. On this foray it was found in the Longwood Range in two locations on the higher levels of Bald Hill.

Mosses

Only two species of moss appear to be newly recorded from the Southland Land District. *Macromitrium orthophyllum* Mitt. was found at two localities. On the Lookout Track at Lake Hauroko it occurred with both dwarf males and capsules on *Nothofagus solandrii* in a turf c. 0.2 × 0.15 m. It was recorded also from Dean Forest.

The New Zealand endemic *M. orthophyllum* is predominantly distributed in eastern portions of the main islands and its range extension to include Fiordland National Park is somewhat surprising. The occurrence of seven species of *Macromitrium*, in addition to one each of the related genera *Macrocoma* and *Schlotheimia*, in the beech forest at Lake Hauroko made this site of exceptional interest.

The other species new to the District, *Scorpidium cossonii* (Schimp.) Hedenäs, was collected in a shallow seepage to a wetland, east the Bald Hill summit. Collections of the species elsewhere in New Zealand have formerly been referred to *Drepanocladus revolvens*.

Acknowledgements

The lists presented here were collated from records reported by a number of workshop participants: Peter Beveridge, Patrick Brownsey, Chris Cargill, Lynette Cave, Alison Downing, Allan Fife, Lynette Fischer, David Glenny, Rodney Lewington, Graham Pritchard, Josh Salter and Paula Warren.

Our sincere thanks are due to Allan Fife and David Glenny for comments on the draft of this record.

Specimens from the workshop are lodged in the following herbaria: AK, CANB, CHR, HO, MQU and WELT. Bryophyte nomenclature generally follows that accepted on the Landcare Research website.

Pterobryella longifrons, an overlooked synonym of *Pterobryella speciosissima*

David Meagher
School of Botany, The University of Melbourne

Pterobryella longifrons (Müll.Hal.) A.Jaeger was first described by Carl Müller (as *Pilotrichum longifrons*) in 1859, from a specimen collected in the Philippines by Cumming (no. 2198). Jaeger transferred the species to *Pterobryella* in 1876.

Mitten (1873) published a description of *P. speciosissima* (Sull.) Müll.Hal., originally described by William Sullivant from a specimen collected by Milne in Fiji. In giving the distribution, Mitten stated that it was 'Also in the Malay Archipelago (Herb. Hooker!), and in the Philippine Islands (Cum[m]ing! n. 2198).' In other words, he considered the type of *P. longifrons* to be identical to *P. speciosissima*. Even so, I do not think this can be taken to be a formal statement of synonymy, as he did not refer to the name *P. longifrons* at all and may have been unaware of it.

However, Dixon (1923) reported that 'I have carefully compared original specimens of *P. speciosissima* (Sull.) with the Philippines *P. longifrons* (C.Muell.), and can detect no difference whatever. *P. speciosissima*, as hinted by Brotherus, must certainly be looked upon as a synonym.' There can be no doubt that this is a clear statement of synonymy, and it has not been challenged since. Yet the name *P. longifrons* has continued to be used and is treated as a separate taxon in databases, checklists of species, and numerous herbarium collections. The synonymy needs to be recognised, as follows:

Pterobryella speciosissima (Sull.) Müll.Hal. in Besch., Bull. Soc. Bot. France 25: 65 (1878)

Hypnum speciosissima Sull., Proc. Amer. Acad. Arts Sci 3: 75 (1854); *Hypnodendron speciosissima* (Sull.) Mitt. in Seeman, Fl. Vit., 401 (1873)

= *Pilotrichum longifrons* Müll.Hal., Bot. Zeit. 17: 247 (1859); *Pterobryella longifrons* (Müll.Hal.) A.Jaeger, Gen. Spec. Musc. VII, 241 (1876), syn. fide Dixon (1923: 503)

= *Pterobryon elatum* Lindb., Öfvers. Förhandl. Kongl. Svenska Vet.-Akad. 21: 601 (1864), syn. fide Müller (173: 181) as *Pterobryum elatum*, sub *Pterobryella longifrons*

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A robin´s nest made (almost) entirely of moss

Emma Pharo and David Meagher

While we were struggling through some Mountain Ash forest near Powelltown in Victoria, lightly burnt in 2009 (the forest, not us), we came across this extraordinarily tiny robin´s nest on a branch of an *Olearia argophylla*. Except for a few strands of grass, it was woven entirely from *Thuidiopsis sparsa*, which was not otherwise present at the site.

We assume that the bird(s) deliberately harvested the moss from off the site, knowing it would be suitable for a nest. Although the nest was woven quite loosely it was very strong, probably because of the spikiness of the moss and the way the branches intertwine when they are wrapped about each other. The attachment to the branch was by way of numerous strands wrapped around the main branch and a smaller divergent branch.

We now call this species 'Velcro Moss´!

(Thanks to Martin O'Brien and Richard Loyn for identifying the nest as belonging to a robin, probably the Pink Robin.)

The tiny robin's nest woven from *Thuidiopsis sparsa*, with Emma´s index finger for 'scale'.

11th Australian Bryological Workshop — advance notice

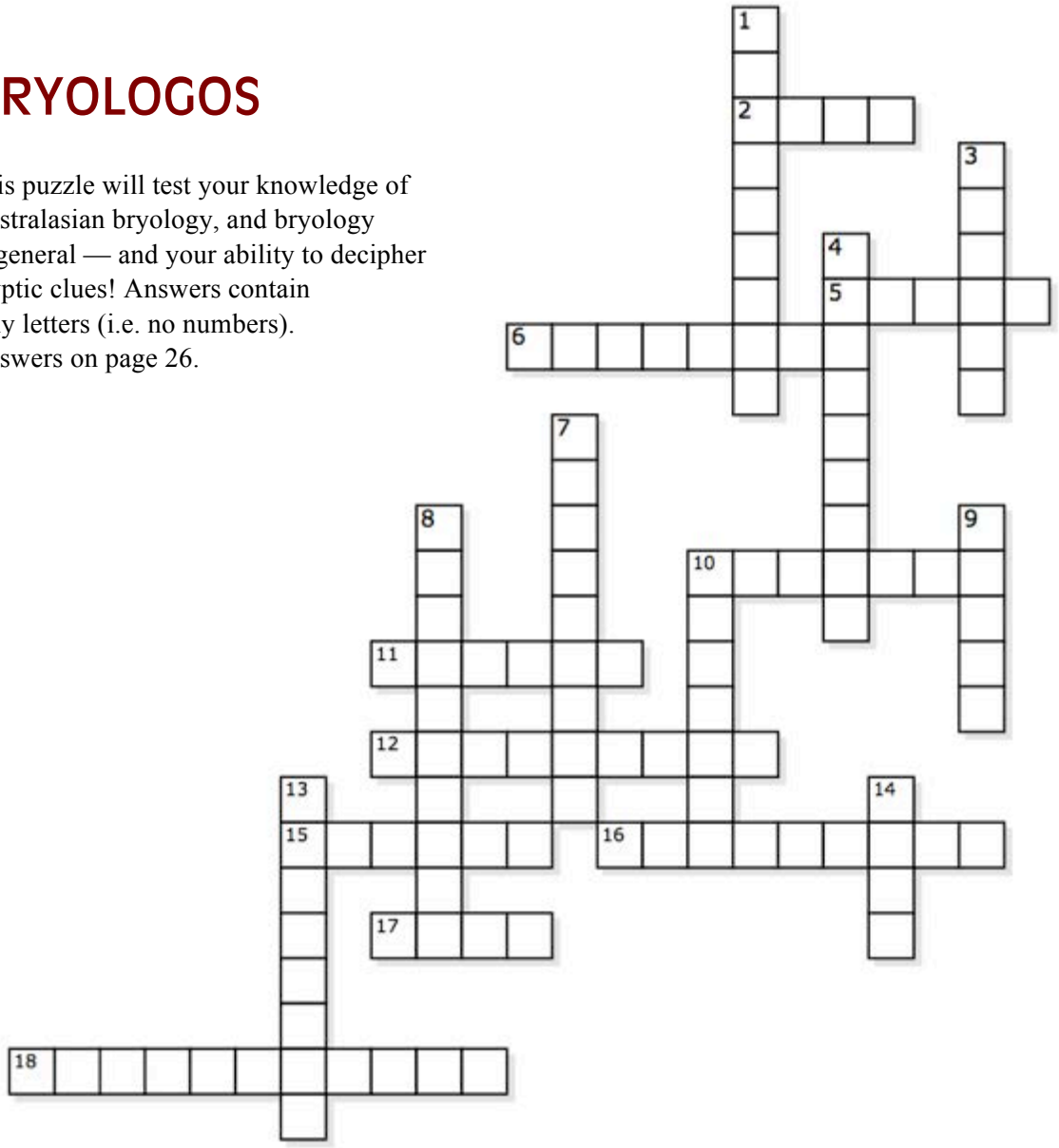
The 11th Australian Bryological Workshop will be held in late 2012 on the Sapphire Coast, which stretches from Eden to Narooma in south-eastern New South Wales. The area is famous for its coastal scenery, set against the backdrop of the Great Escarpment. There are many national parks in the region and a great variety of vegetation communities, including warm temperate rainforest, wet and dry sclerophyll forest, montane swamps, bogs and coastal heathland.

The workshop will coincide as best as possible with the second semester break of Australian universities, and the venue will in the Bega–Merimbula area, about 450 km south of Sydney.

Details of the workshop will be posted on Bryonet as soon as they are finalised, and will also be included in the next issue of the Newsletter in April 2012.

BRYOLOGOS

This puzzle will test your knowledge of Australasian bryology, and bryology in general — and your ability to decipher cryptic clues! Answers contain only letters (i.e. no numbers). Answers on page 26.



Across

2 Many bryophyte genera are separated by this region.
5 WWW
6 Named by R.Br. after Mr T.
10 He was on a mission to collect New Zealand plants.
11 Queensland bryologist — in Townsville!
12 Lizard-footed *Bazzania*.
15 Genus named after Michel-Charles Durieu de Maissonneuve.
16 Its name means ‘split tooth’.
17 Scott-ish abbreviation.
18 Genus with a dubious bladder, according to Johnson.

Down

1 His 64000th was a *Hypnodendron*.
3 Paddy is a confused lad — not!
4 Colony where Drummond collected many new species.
7 Four of its species are named after Pat, Harvey, Lilian and Zen.
8 Sinske said that Takasi collected its type.
9 Aussie mountain where *Spiridens* and *Pterobryella* can be seen.
10 Magnificent botanical garden that is home to over 200 species in the only outdoor moss garden in the world.
13 Helen and Tony’s little liverwort.
14 Capital code in New Zealand.

What's that green stuff?

This green stuff is a moss from New Zealand and Australia. Some of you might have recognised the species already…or think you have! It is grouped with 10 other species in a genus whose name alludes to the rudimentary peristome. This species is an epiphyte, but it can also survive for a long time on the ground after falling from a tree — at least until the woody substrate disintegrates. Alphabetically the species ranks after the only other species in New Zealand and Australia. It has a sister called *intermedium* in New Guinea, and another called *menziesii* in South America.

Cover photo

Papillaria crocea on the summit of Moumoukai, Raoul Island, Kermadec Group, New Zealand. (D.A.M.).

Bryologos

Across: 2 rbcL, 5 Watts, 6 *Daltonia*, 10 Colenso, 11 Cairns, 12 *sauropoda*, 15 *Riella*, 16 *Fissidens*, 17 GAMS, 18 *Vesicularia*.
Down: 1 Streimann, 3 Dalton, 4 Swan River, 7 *Calomnion*, 8 *Tuyamaella*, 9 Gower, 10 Cibodas, 13 *Drucella*, 14 WELT.

What's that green stuff?

Leptostomum macrocarpon (Hedw.) Bach. Pyl. — This is Hedwig's original spelling of the name. However, it is often written incorrectly as *macrocarpum*, perhaps in the belief that a Latinised epithet must accompany a Latinised generic name. But the specific epithet need only be in grammatical agreement with the generic name (ICBN Article 23.5), which it is in this case (*Bryum* is neuter).— D.A.M.

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www.utas.ed.au/docs/plant-science/abn/index.htm

Editor: David Meagher (dameagXXunimelb.edu.au).
('XX' is an anti-spam device: replace it with @ to email.)

Articles relating to bryology in Australasia are welcome.
The deadline for Issue 60 is 31 March 2012.